

**WHAT IS CLAIMED IS:**

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1. An engine generator apparatus for interconnecting an output of a generator driven by an engine with a power system, comprising:

5 an oxygen density sensor provided on the engine for controlling the air-fuel ratio based on its output;

a means for interconnecting the output of the power generator with the power system, when the oxygen density sensor becomes its activated state;

10 a fault detecting means for detecting a fault in the interconnection with the power system;

a means for canceling the interconnection with the power system when the fault detecting means detects a fault, and resuming the interconnection with the power system when the  
15 fault is removed; and

a means for stopping the engine when the interconnection is canceled for a predetermined length of time due to the fault detection.

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2. A cogeneration system comprising:

an engine generator apparatus for interconnecting an output of a generator driven by an engine with a power system,  
25 comprising:

an oxygen density sensor provided on the engine for

controlling the air-fuel ratio based on its output;

a means for interconnecting the output of the power generator with the power system when the oxygen density sensor becomes its activated state;

5 a fault detecting means for detecting a fault in the interconnection with the power system;

a means for canceling the interconnection with the power system when the fault detecting means detects a fault, and resuming the interconnection with the power system when the fault is removed; and

a means for stopping the engine when the interconnection is canceled for a predetermined length of time due to the fault detection,

15 a waste heat utilizing unit for utilizing waste heat produced by the operation of the engine generator apparatus, wherein the engine is started in response to a heat request generated by the waste heat utilizing unit.

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3. A cogeneration system according to claim 2, wherein the waste heat utilizing unit comprises:

a hot-water tank for storing a first hot water heated with the waste heat released from the engine generator apparatus;

a first heat exchanger installed in the hot-water tank

for generating the first hot water;

a second heat exchanger positioned above the first heat exchanger in the hot-water tank for heating the first hot water to a second hot water hotter than the first hot water using the heat of the first hot water;

a temperature sensor provided in proximity between the upper end of the first heat exchanger and the lower end of the second heat exchanger; and

a controller arranged responsive to an output of the temperature sensor for generating and supplying the heat request to the engine generator apparatus.